

City of Rochester, MN
Pilot I/I Study – Private Sector Policy Issues

ISSUE #1 Private Sector I/I

A. Objective

- a. Eliminate, to the extent practical, infiltration/inflow (I/I) from private sector sources including both buildings and laterals from entering the public sanitary sewer system.

B. Findings

- a. I/I enters the sanitary sewer system from both private buildings and private laterals contributing to the wet weather flow that can overload the public sanitary sewer system during wet weather events.

C. Solution

- a. Develop and implement a comprehensive private sector improvement program including addressing policy considerations for sump pumps, artificial seepage collection systems¹, laterals, and funding.

ISSUE #2 Fats, Oils, and Grease

A. Objective

- a. Reduce the amount of fats, oils and greases (FOG) entering the public sanitary sewer system and charge appropriately for FOG that is discharged into the sanitary sewer system.

B. Findings

- a. FOG enters the sanitary sewer system contributing to loss of line capacity due to grease build up and increases treatment costs required at the WRP.

C. Solution

- a. Define and implement a FOG reduction program that includes best management practices.

¹ “Artificial Seepage Collection Systems” include all systems created to drain groundwater from inside and outside a foundation wall by drilling or otherwise creating channels for groundwater to flow into the basement. Typically referred to as “beaver drains”.

ISSUE #1 Private Sector I/I

Drivers for private building sewer lateral programs:

- Sewer backups onto private property, including sewage backups into basements, causing potential health problems and damage to private property and buildings.
- Increased annual costs for maintenance and treatment (with increased volumes flowing through the system).
- Increased capital costs for conveyance and treatment infrastructure upgrades (i.e. when a system approaches capacity new facilities or expanded wastewater treatment capacity may be required to accommodate the additional flow).
- Sanitary Sewer Overflows (SSOs), or spills into private or public land and waterways from sanitary sewers causing potential damage to the environment and sensitive ecosystems, and causing public health concerns.

Recommended Amendment to Sewer Use Ordinance

Based on results of the Pilot I/I Study, infiltration and inflow (I/I) originating in the privately owned sections of the system is a significant contributor to the total system I/I. In fact, I/I originating from the private sector is about 50% of the total I/I. Foundation drain sump pumps and area drains connected to the sanitary sewer system are currently not allowed by the sewer use ordinance however there are other types of I/I sources that are not specifically addressed in the existing sewer use ordinance. As far back as 1992 the sewer use ordinance had a compliance requirement, but it has not been enforced. Accordingly, it is recommended that the sewer use ordinance be modified as follows:

1. Artificial seepage collection systems that collect groundwater from around the foundation and direct the groundwater to drains that eventually discharge to the sanitary sewer system should not be allowed.
2. If sump pump discharges cause a nuisance problem such as sidewalk icing during the winter, the ordinance should allow the City Engineer to allow seasonal exceptions. A seasonal exception would allow sump pump discharges to the sanitary sewer during the winter months (November 1 through April 1).
3. Modify sewer use ordinance to require hard sump pump piping to the outside whenever a sump is installed. Remove wording in current ordinance that states, "at the time the sump is constructed".
4. Defective laterals should not be allowed and repair should be required. Defective laterals will be as determined by standards established by the City Engineer.
5. Institute a point-of-sale compliance requirement.
6. Clarify compliance requirements for both building and lateral sources in a guidance or Private Sector I/I Procedurals manual and have the ordinance indicate that compliance to be per ordinance as determined by the City Engineer.
7. A monthly non-compliance surcharge should be implemented. Grant authority to the City Engineer to identify focused study areas where private sector inspection and removal of private I/I sources in buildings and laterals can be implemented.

Alternatives to Implementation of a Private Sector I/I Program

A private sector I/I program needs to address several important areas to be successful. These include:

1. Public outreach
2. Legal considerations to update sewer use ordinances and to handle issues as required
3. Resources to implement a program including people and technology
4. Inspection and removal program methods to find and fix private sector I/I sources that are not in compliance with the sewer use code.
5. Funding

The approach to private sector I/I generally can be characterized as a:

- voluntary, incentive-based approach,
- regulatory, enforcement-based approach,
- informational approach, or
- hybrid approach (some combination of the first 3).

A review of the approach used by other communities in Minnesota is presented in Attachment A. Some programs have been voluntary and some mandatory. Some communities have instituted a monthly charge for non-compliance. In most cases cited, the property owner was responsible for the necessary repair however the City of Duluth does provide for partial cost of repairs.

In a Water Environment Research Foundation Study (WERF) entitled, "Methods of Cost-Effective Rehabilitation of Private Lateral Sewers," a national survey was conducted of 58 agencies and the legal, technical and financing approaches were presented and analyzed. The legal issues survey is presented in Attachment B. The information shows that some agencies require written permits from property owners prior to entering private property while others only require a verbal agreement. A total of 35 % of the agencies reported that they do nothing in terms of enforcement to make property owners carry out disconnections. Other agencies reported that non-compliance could result in water being shut-off, adding a monthly surcharge to the utility bill, add an amount to the property tax bill, or summoning the property owner to court. A total of 62% of the agencies reported they don't offer any type of financial assistance. The 38% of agencies that did report they provide financial assistance offered such things as low-interest loans, partial payments, predefined cap by type of repair, or hardship case assistance.

Examples of current practices for financing from the WERF study are presented in Attachment C. There is a wide range of methods used by utilities ranging from low interest loans to partial or full payment of repairs. A summary of reported payment options is reproduced below in Table 6-2 from the WERF report. Legal precedents from the WERF report are presented in Attachment D.

Table 6-2. Reported Private Lateral Payment Options.

No.	Option	Description
1	No Funding	Homeowner responsible for maintenance and repair of entire lateral
2	Lower Lateral Funding Only	Financial assistance provided for lower lateral repairs and Wye connections. Homeowner responsible for upper lateral and part of lower lateral repair up to a maximum cost.
3	Funding for Testing Only	Agency provides funding for testing of lateral and homeowner is responsible for lateral repair
4	Voluntary Test and Repair	Homeowners of a single family home can volunteer to have their lateral tested and receive a specified funding level for any repair costs and inspection costs.
5	Mandatory Test and Repair Upon Sale of Home	Prior to sale of home, mandatory testing and any needed repairs are all paid for by the homeowner. A Certificate of Compliance can be issued after repairs that is effective for a specific length of time.
6	First Time Funding Only	City funds the first time that a lateral is repaired with the homeowner responsible thereafter.
7	Deductible Funding	Agency provides funding for repairs beyond a set maximum cost and, in some cases, all street, curb and sidewalk repairs.
8	Insurance Funding	Agency makes available insurance to homeowners that covers all or part of the cost for lateral repair.
9	Zero Interest Loan With Deferred Payback Funding	Agency funds lateral repairs through a zero interest loan which is paid back at the time of house sale.
10	Funding Limit by Defect	Agency provides full or partial funding for removal or repair of private section, I/I sources and defects based on type of defect.
11	Full Funding	All O&M responsibility is held by the Agency.
12	Warranty	Homeowner purchases an annual warranty and thereby transfers responsibility for all O&M to the Agency.
13	Split Funding	Dual responsibility where Agency conducts all O&M activities and shares the costs equally between the Agency and the homeowner.
14	No Funding/Agency Acts As Agent	Homeowner pays but the Agency acts as the agent for the homeowner in coordination of services and hiring of contractors. Responsibility for O&M and all costs are held by the homeowner.
15	Hardship Cases	Hardship cases where the Agency provides support on a case-by-case basis only. O&M responsibility is held by the homeowner.
16	Agency Inspection/Mandated Repair	Agency assesses lateral condition through inspection or I/I study and identifies lateral defects. Agency instructs the homeowner to make appropriate changes with consideration for penalties. O&M responsibility held by the homeowner.
17	Agency Inspection/Incentive Rebate	Agency inspects laterals as part of sewer reconstruction contracts. Homeowner is advised of defects and fined a set fine per month if the repairs are not completed within a specified time. Homeowners that comply within specified time can participate in an incentive rebate program. O&M responsibility is held by the homeowner.
18	Homeowner Required to Inspect and Provide Annual Report	Homeowner is advised of O&M responsibility and mandated to provide periodic inspection report. Agency has the right to conduct inspections on the homeowner's behalf and charge costs back to the homeowner. O&M responsibility is held by the homeowner.
19	Joint Inspection/Homeowner Mandated to Repair	Homeowner and the Agency inspect assets and the Agency provides the landowner with a report identifying any necessary repairs. The Agency provides a list of authorized contractors and grants the homeowner a set period (e.g. 30 days) to complete the repairs. Non-compliance results in the Agency completing the work and charging the homeowner. O&M responsibility is held by the homeowner.

Recommended Approach to Program

The recommended approach to the City's program includes modifying the current sewer use ordinance to comprehensively address private sector I/I in terms of inspections and repairs, funding for repairs, legal aspects and property owner charges for non-compliance. Once the program details are developed, City resources including people, tools, and methodology should be developed. Finally, an effective public communications plan should be developed. Recommended key aspects of the recommended approach would be:

1. Modify sewer use ordinance to include recommendations presented previously.
2. Implement a public outreach program. This will be to educate customers and also to encourage program participation both in terms of removal illicit I/I sources and reporting performance problems such as sewer backups.
3. Develop a private sector I/I policy manual that includes current sewer use ordinances, typical letters and notifications to property owners, criteria for compliance, and typical types of repairs as well as a flow chart detailing how inspections and repairs are to be implemented.
4. Establish an inspection and repair program for property owners that do not meet the ordinance requirements.
5. Establish financial incentives for compliance through monthly surcharges for property owners who do not meet the sewer use requirements.
6. Develop/obtain the resources to run the private sector I/I program.

Based on experiences with the Slatterly Park and Kutzky Park Pilot I/I programs, review of the literature, and discussions with City staff, it is recommended that a hybrid approach be used to carry out the private sector I/I removal plan. The hybrid approach will include some aspects of a voluntary, incentive based approach; a regulatory, enforcement based approach; and an informational approach. Key elements of the hybrid approach would be as follows:

1. All customers to be in compliance with building I/I sources within 8 years (by Year 2020) from program initiation. This compliance period would include financial incentives for property owners to pay for repairs. A maximum of \$1,000 financial incentive is suggested for those participating in the first four years (years 1 through 4) followed by a \$500 financial incentive for those participating in the next four years (years 5 through 8).
2. Lateral compliance would be required at point of sale. Financial incentive for securing compliance would be provided by the City. A maximum of \$2,500 will be provided as financial incentives for those laterals identified at point of sale.
3. Financial incentive for securing compliance would be provided by the City for focused study areas identified by the City Engineer. A maximum of \$2,500 will be provided as financial incentives for those laterals identified in the focused study areas.
4. All customers to be in compliance with laterals I/I sources within 18 years (by Year 2030) from program initiation. This compliance period would include financial incentives for property owners to pay for repairs. A maximum of \$2,500 financial incentive is suggested for those participating in the program.
5. Customers whose buildings are not in compliance would be charged a monthly surcharge on their sewer bill beginning Jan 1st, 2020 until compliance is achieved. A monthly surcharge of \$100 is suggested and will be adjusted for inflation.
6. Customers whose laterals are not in compliance would be charged a monthly surcharge on their sewer bill beginning Jan 1st, 2030 until compliance is achieved. A monthly surcharge of \$100 is suggested and will be adjusted for inflation.

A suggested schedule for implementation of the Private Sector I/I Removal program is shown in Table 1.

Table 1 – Private Sector I/I Program Schedule		
Activity	Date	Comment
Policy Ordinance Update	2011	Update all ordinances relative to Private Sector and create Private Sector I/I Removal Procedures Manual
Public Education	2012	Public education campaign to gain program momentum, link customers with resources and information, gain voluntary compliance.
Plumber Education	2012	Program to ensure that intent of private sector program is understood by plumbers, that procedures are understood, and compliance requirements are clear to those doing the work.
Realtor Education	2012	Program to educate realtors on point of sale requirements.
Preparation for Implementation	2011 - 2012	Evaluate and secure people and technology to carry out the program.
Implementation	2012 - 2030	Implement program

ISSUE #2 Fats, Oils, and Grease

Drivers for Fats, Oils, and Grease (FOG) programs:

- FOG results in loss of conveyance capacity by reducing the effective pipe diameter thereby reducing capacity available for growth and may contribute to Sanitary Sewer Overflows (SSOs).
- FOG results in increased maintenance and treatment costs.
- The current sewer use rates provide for additional costs for high strength BOD wastewater but only for those dischargers identified as significant industrial users (SIU). Food service businesses that are not SIUs are not subject to the additional costs for high strength wastewater discharges. There are over 400 food services businesses. The current plumbing code does not address garbage disposal waste and this aspect of FOG control should be reviewed.

Background

FOG is an important consideration for the City's wastewater and collection system. Addressing FOG from food service businesses has been discussed in the past as it is believed they are significant contributors of FOG to the sanitary sewer system. Based on discussions with the City, it would be a challenge to properly categorize and to monitor all food service businesses. There has been some outreach in the past to educate food service businesses regarding FOG. The current plumbing code requires grease traps but it is believed that many of these traps are ineffective in removing FOG. The current grease program is a reactive one that responds to grease identified through CCTV and then contacting businesses on sewer lines where grease has been observed. The current "reactive" grease program is ineffective and does not address the issues caused by FOG. The current City resources are insufficient to address compliance and maintenance issues. Disposal of captured grease is also a challenge. There is a need for a comprehensive FOG program.

Recommended Actions

Based on results of the Pilot I/I Study, FOG is a significant contributor to collection system maintenance. In addition, FOG results in increased treatment costs. Accordingly, it is recommended that the City:

Undertake a study to develop a FOG program that will address:

1. Sewer use rates with special emphasis on food service businesses and garbage disposal waste.
2. Public outreach and education regarding FOG reduction.
3. Evaluate options for disposal of FOG.
4. Update current City FOG ordinance/standards as necessary.
5. Evaluate current FOG maintenance practices and update as necessary.

Questions noted during the June 22, 2011 call:

1. For the Council:
 - a. What are the alternatives for changes/updates to the Private Policy?
 - b. What are other local (MN) cities doing (Golden Valley, Duluth, etc) w/r/t ordinance changes?
 - c. Provide Council with guidance on changes to policy regarding: sump pumps, beaver drains, etc.
2. White paper of alternatives (Pros and Cons) for staff review/discussion:
 - a. Of the local ordinance changes that are available for review, what do they say?
 - i. What are the enforcement ramifications?
 - ii. For private polices that are in place, what is the feedback on how implementation of changes worked? What can be done differently/better? What should we expect?
 - iii. Cost/payback – who’s paying for:
 1. Inspections?
 2. Work to bring into compliance?
 - iv. What is the staffing impact to enforce new ordinances? (RF-inspections would be done by licensed contractors). Still need to manage enforcement actions.
 1. How do you enforce – inspection at point of sale? Other (building permit)?
 - v. What’s the average cost of inspections and what do they included/require? (should laterals be included?). For Rochester, need to include beaver drains and sump pumps at a minimum:
 1. Beaver Drains – illegal to direct discharge except during winter months (Nov-Mar)
 2. Sump Pumps - illegal.
 - b. Sewer back-up policy – what can be done to increase reporting so that better data is available to staff regarding back-ups?
 - i. Assumed back-ups are currently under reported.
 - ii. Should the City purchase no-fault insurance (say from League of MN cities)?
 - c. FOG, Restaurants – should there be a higher rate fee for food service users to account for higher treatment costs (higher BOD), more sewer maintenance due to grease? Is this being done elsewhere?

Response to Questions:

1. For the Council:
 - a. What are the alternatives for changes/updates to the Private Policy? *Refer to this memorandum and referenced documents. There are many options available that have been used.*
 - b. What are other local (MN) cities doing (Golden Valley, Duluth, etc) w/r/t ordinance changes? *Refer to TM 11.*

- c. Provide Council with guidance on changes to policy regarding: sump pumps, beaver drains, etc. *Refer to this memorandum and TM 11.*
- 2. White paper of alternatives (Pros and Cons) for staff review/discussion:
 - a. Of the local ordinance changes that are available for review, what do they say?
 - i. What are the enforcement ramifications? *Requires legal process to be established through ordinance, resources to carry out the enforcement and can result in upset customers. Enforcement will likely result however in greater compliance.*
 - ii. For private polices that are in place, what is the feedback on how implementation of changes worked? What can be done differently/better? What should we expect? *Public communication is critical to a successful program. There are many variations in programs in the Rochester geography and across the nation and therefore it is difficult to say what is the best combination of approaches. In general, voluntary programs are not as effective as mandatory programs; voluntary programs take more time and effort to achieve results; program requires support of political body and legal counsel; program requires appropriate funding; program requires regular evaluation and updates.*
 - iii. Cost/payback – who’s paying for:
 - 1. Inspections? *Varies by program. Our recommendation is for the City to conduct inspections or allow homeowner to conduct the inspection by a plumber.*
 - 2. Work to bring into compliance? *Homeowner’s responsibility but provide for low income help and help for street and other crossings that could be expensive and out of the norm.*
 - iv. What is the staffing impact to enforce new ordinances? (RF-inspections would be done by licensed contractors). *Still need to manage enforcement actions. Will require additional resources in terms of people and tools to track information. If inspections and review of information is contracted out 1 additional staff person equivalent may be needed.*
 - 1. How do you enforce – inspection at point of sale? Other (building permit)? *Need legal process in place and institute charge for non-compliance.*
 - v. What’s the average cost of inspections and what do they included/require? (should laterals be included?). *For Rochester, need to include beaver drains and sump pumps at a minimum: Inspections costs for building sources will be about \$100 each and for laterals about \$150 each. Inspections should include both building and laterals.*
 - 1. Beaver Drains – illegal to direct discharge except during winter months (Nov-Mar)
 - 2. Sump Pumps - illegal.
 - b. Sewer back-up policy – what can be done to increase reporting so that better data is available to staff regarding back-ups? *Public outreach plan to educate the public. Provide incentive such as installation of backup preventer valve as a temporary solution to a backup while other longer term solutions are investigated.*
 - i. Assumed back-ups are currently under reported.
 - ii. Should the City purchase no-fault insurance (say from League of MN cities)?

- c. FOG, Restaurants – should there be a higher rate fee for food service users to account for higher treatment costs (higher BOD), more sewer maintenance due to grease? Is this being done elsewhere? *This would require a cost evaluation study to determine the impact that these users are currently having on the system and the benefit of modifying the current sewer use ordinance. At a minimum, an educational campaign should be started to educate dischargers on the problems with grease to get voluntary assistance.*

Attachment A

Attachment B

Attachment C

Attachment D